OIPE JC86
DEC 13 2004
PATENT & TRADEMARK OFFICE

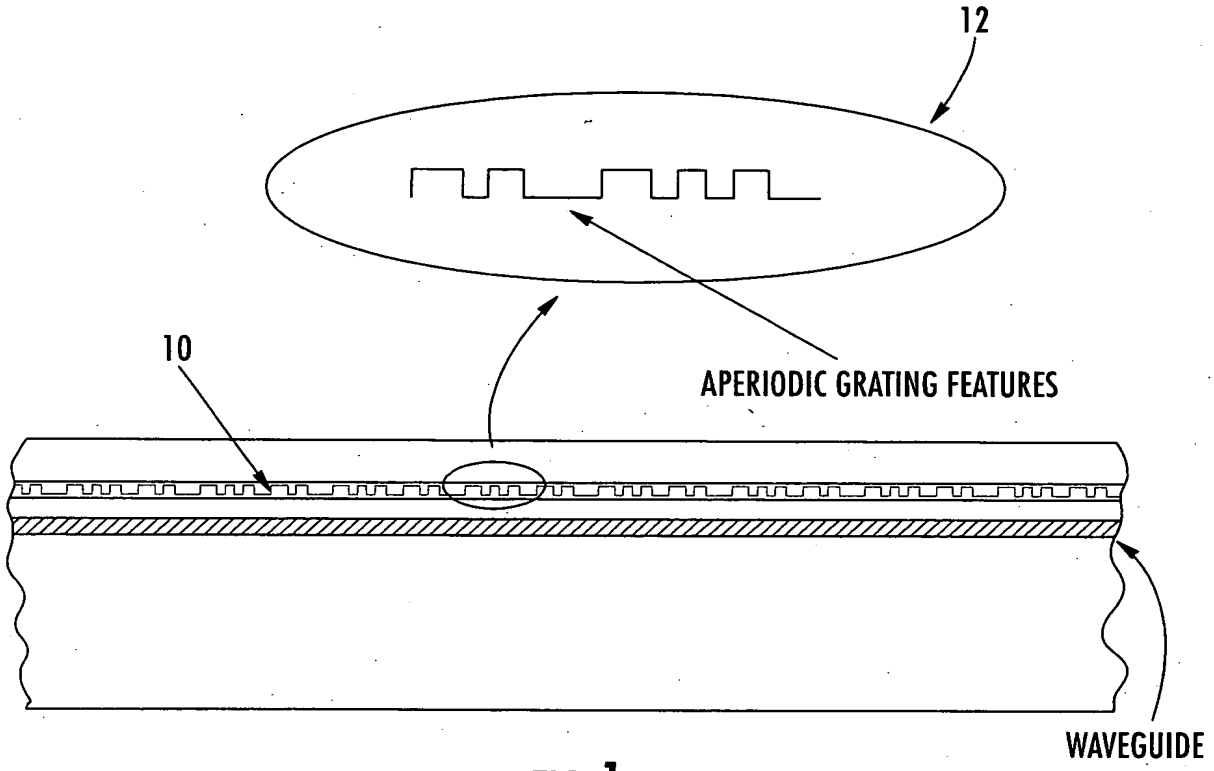

FIG. 1

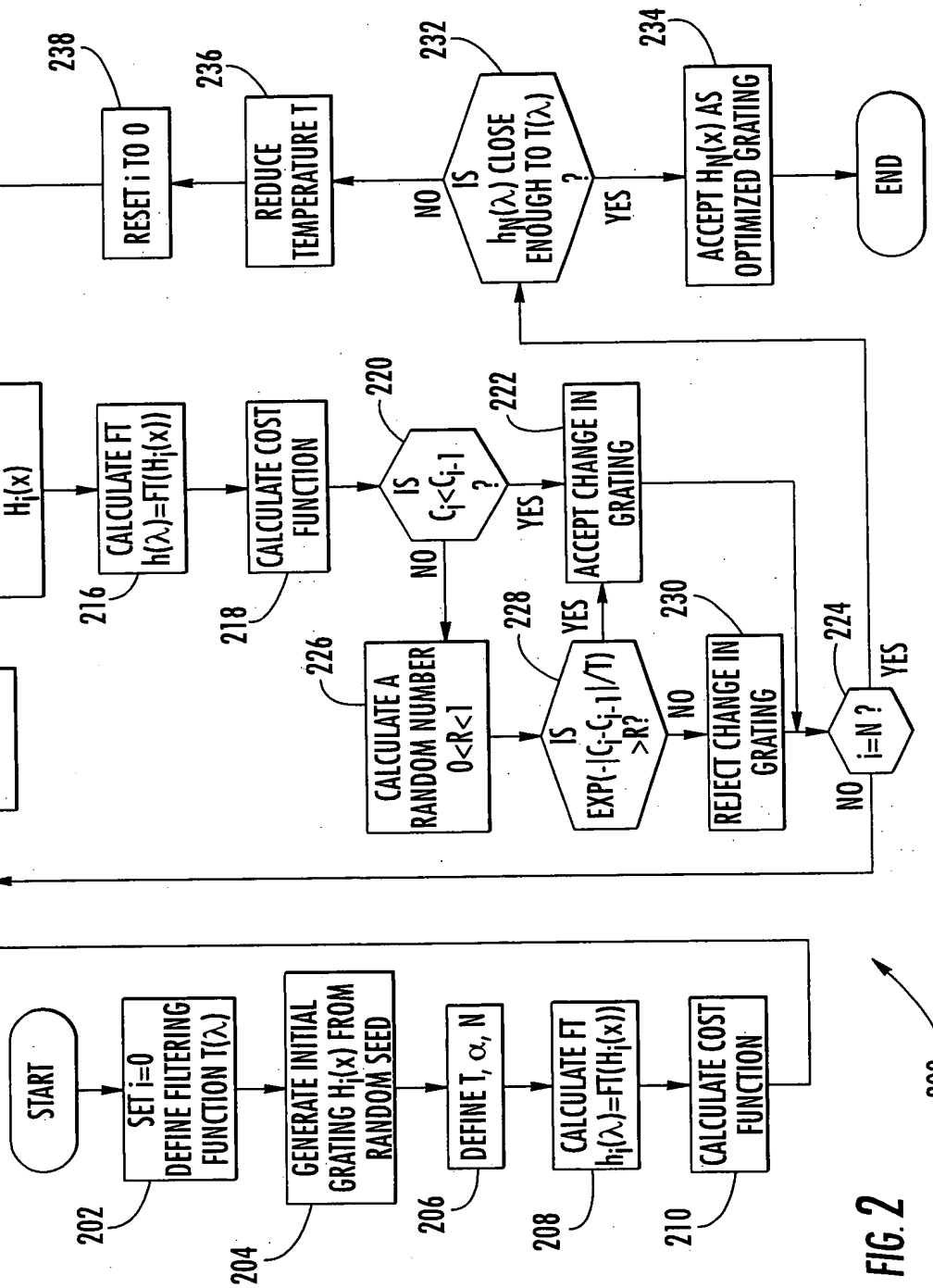
START
SET i=0
DEFINE FILTERING FUNCTION T(λ)
GENERATE INITIAL GRATING Hi(x) FROM RANDOM SEED
DEFINE T, α, N
CALCULATE FT hi(λ)=FT(Hi(x))
CALCULATE COST FUNCTION
i=i+1
MAKE RANDOM CHANGE IN GRATING Hi(x)
CALCULATE FT h(λ)=FT(Hi(x))
CALCULATE COST FUNCTION
IS Ci<Ci-1 ?
CALCULATE A RANDOM NUMBER 0<R<1
IS EXP(-|Ci-Ci-1|/T) >R?
ACCEPT CHANGE IN GRATING
REJECT CHANGE IN GRATING
i=N ?
IS hN(λ) CLOSE ENOUGH TO T(λ) ?
REDUCE TEMPERATURE T
RESET i TO 0
ACCEPT HN(x) AS OPTIMIZED GRATING
END
YES
NO
200
202
204
206
208
210
212
214
216
218
220
222
224
226
228
230
232
234
236
238

FIG. 2

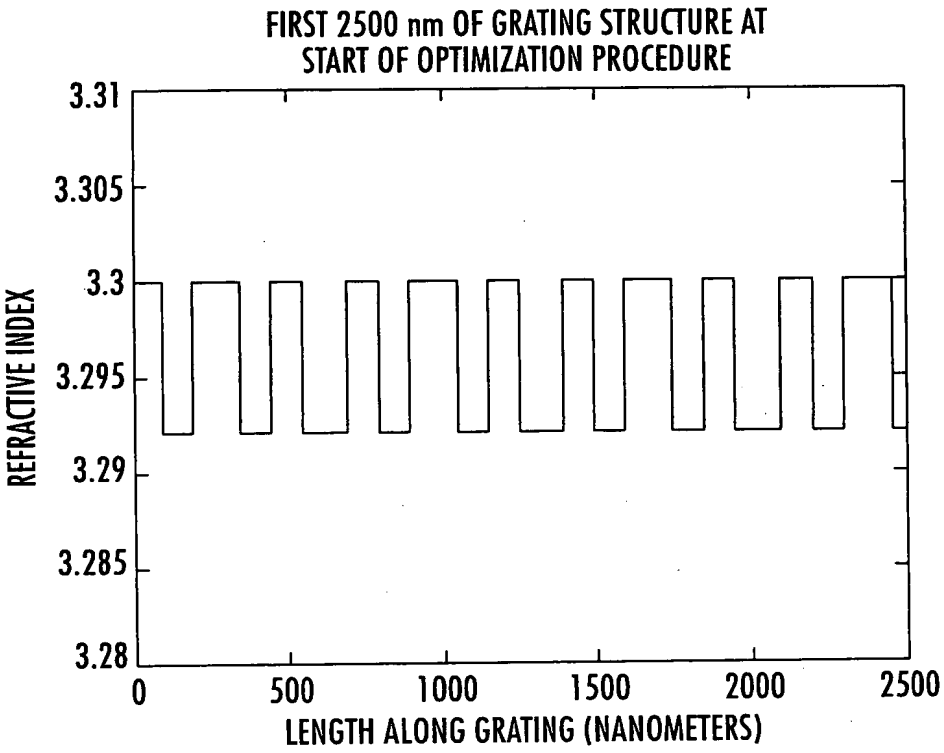
FIRST 2500 nm OF GRATING STRUCTURE AT
START OF OPTIMIZATION PROCEDURE
REFRACTIVE INDEX
3.31
3.305
3.3
3.295
3.29
3.285
3.28
0
500
1000
1500
2000
2500
LENGTH ALONG GRATING (NANOMETERS)

FIG. 3

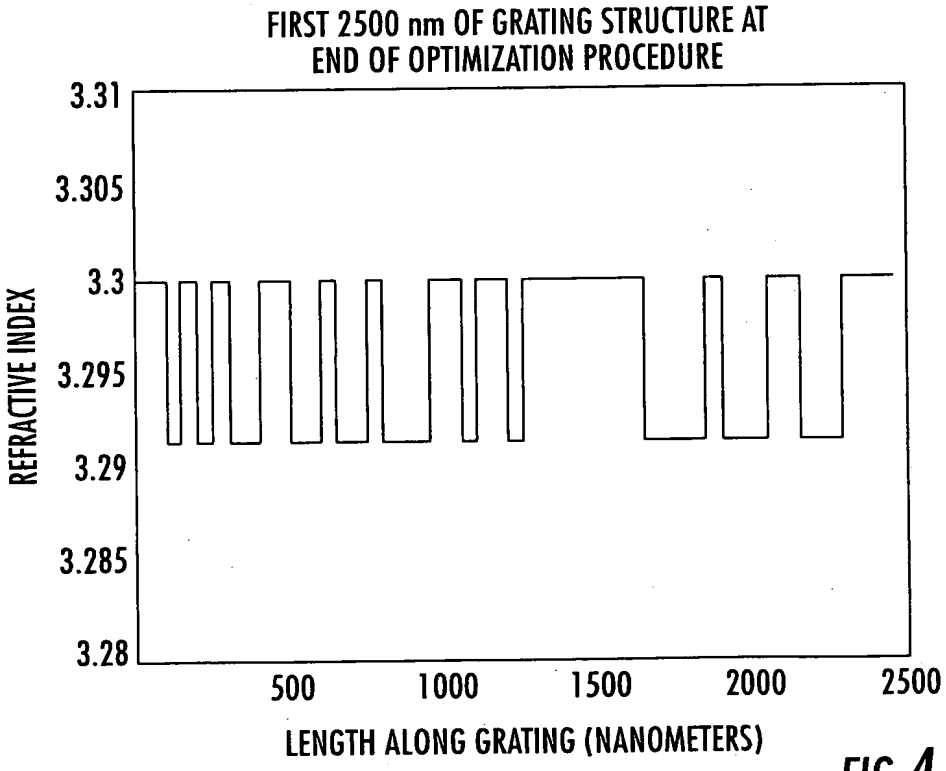
FIRST 2500 nm OF GRATING STRUCTURE AT
END OF OPTIMIZATION PROCEDURE
REFRACTIVE INDEX
3.31
3.305
3.3
3.295
3.29
3.285
3.28
500
1000
1500
2000
2500
LENGTH ALONG GRATING (NANOMETERS)

FIG. 4

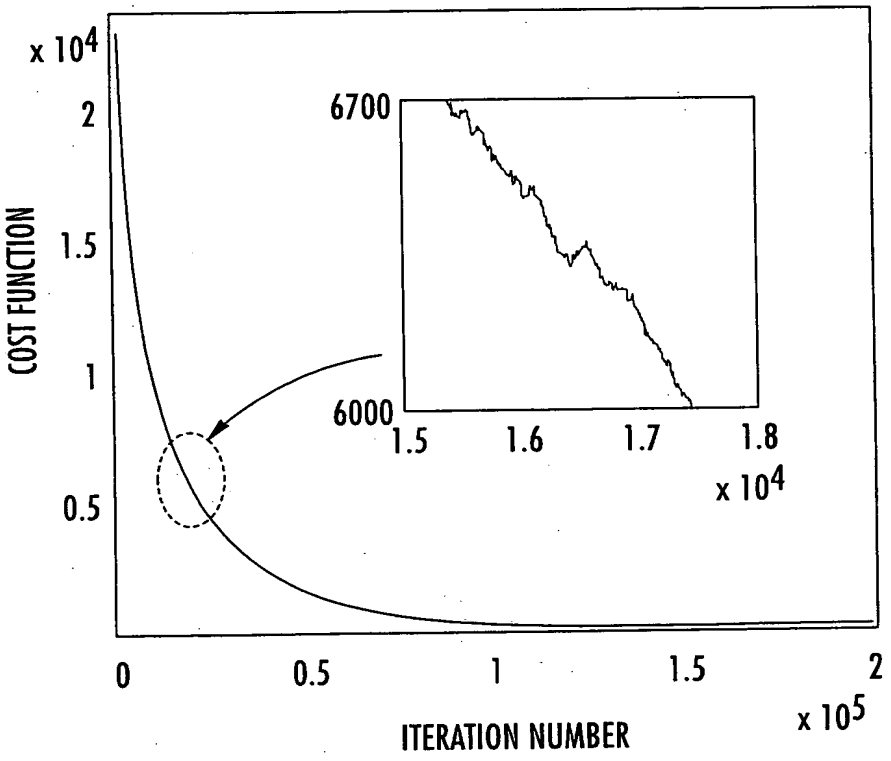
x 10^4
2
1.5
1
0.5
COST FUNCTION
6700
6000
1.5
1.6
1.7
1.8
x 10^4
0
0.5
1
1.5
2
x 10^5
ITERATION NUMBER

FIG. 5

REPLACEMENT

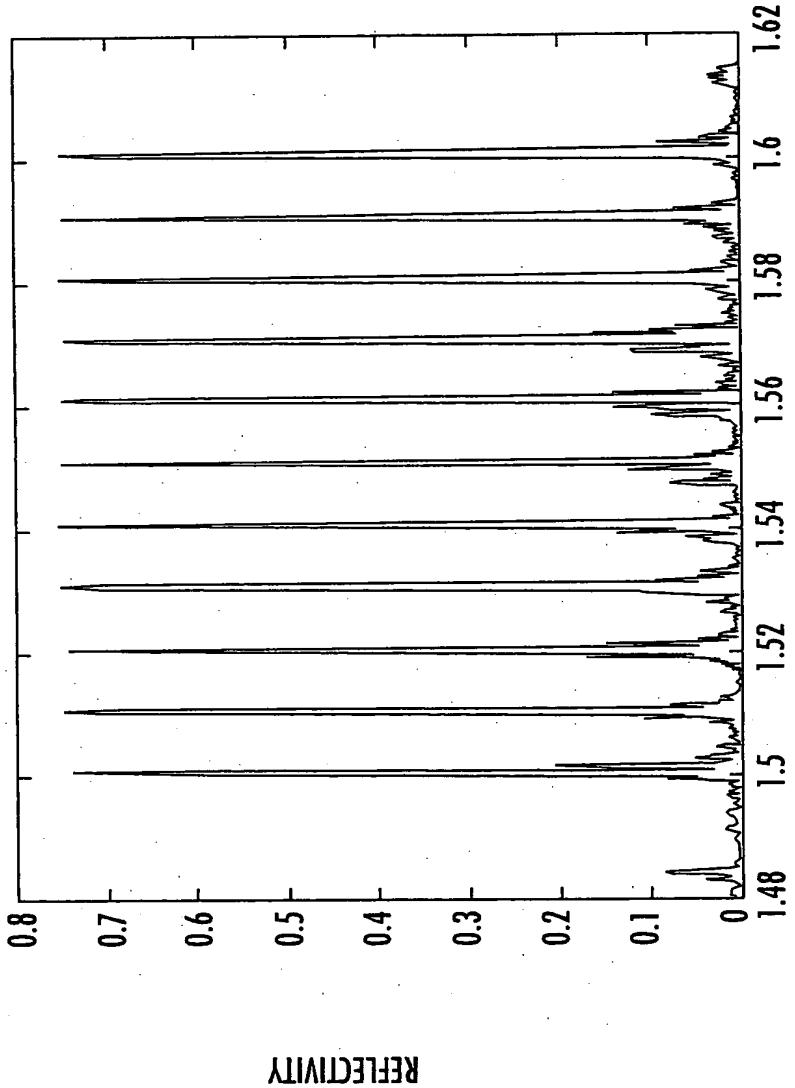

FIG. 6

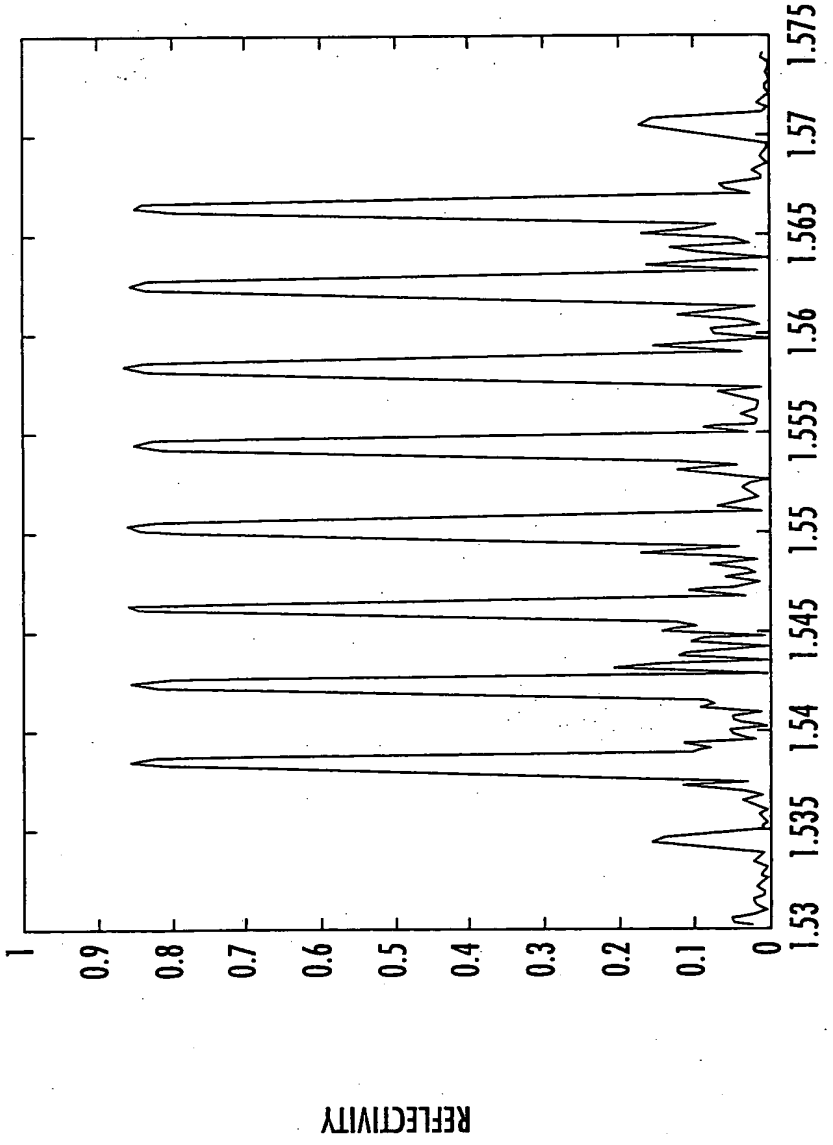
REFLECTIVITY
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.53
1.535
1.54
1.545
1.55
1.555
1.56
1.565
1.57
1.575
WAVELENGTH (μm)

FIG. 7

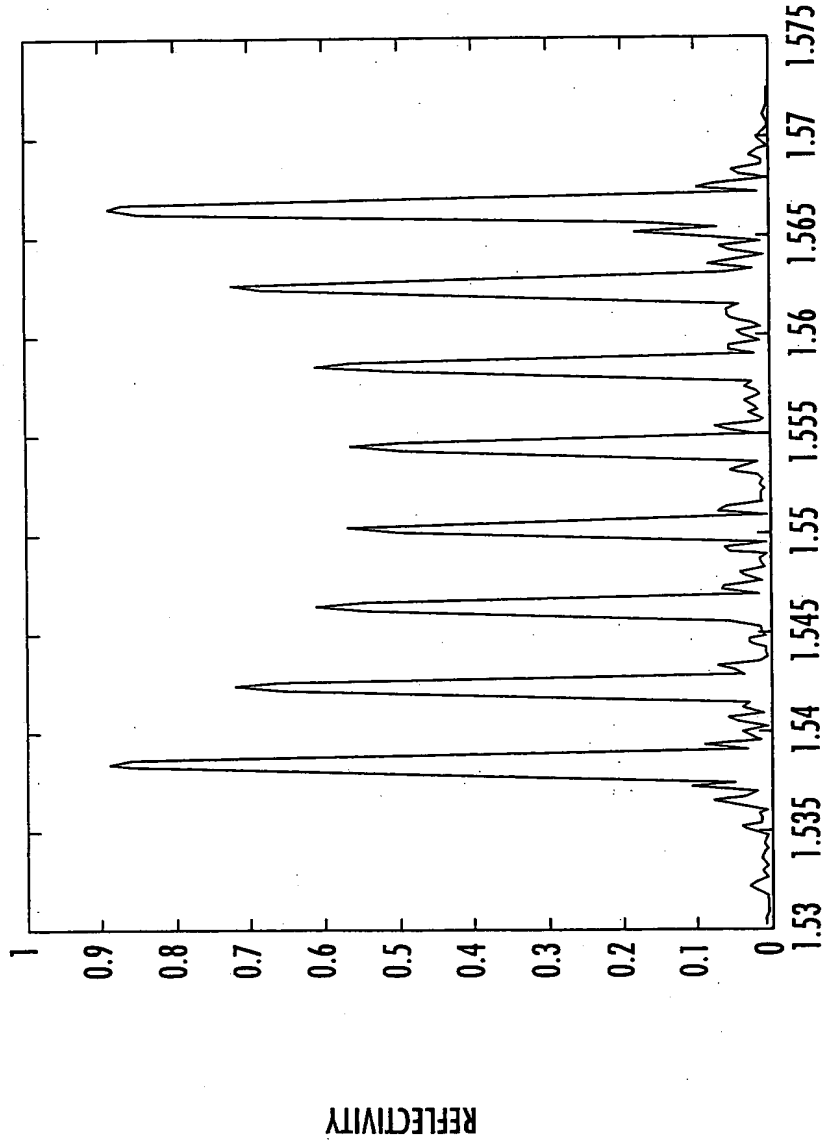
REFLECTIVITY
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1.53
1.535
1.54
1.545
1.55
1.555
1.56
1.565
1.57
1.575
WAVELENGTH (μm)

FIG. 8

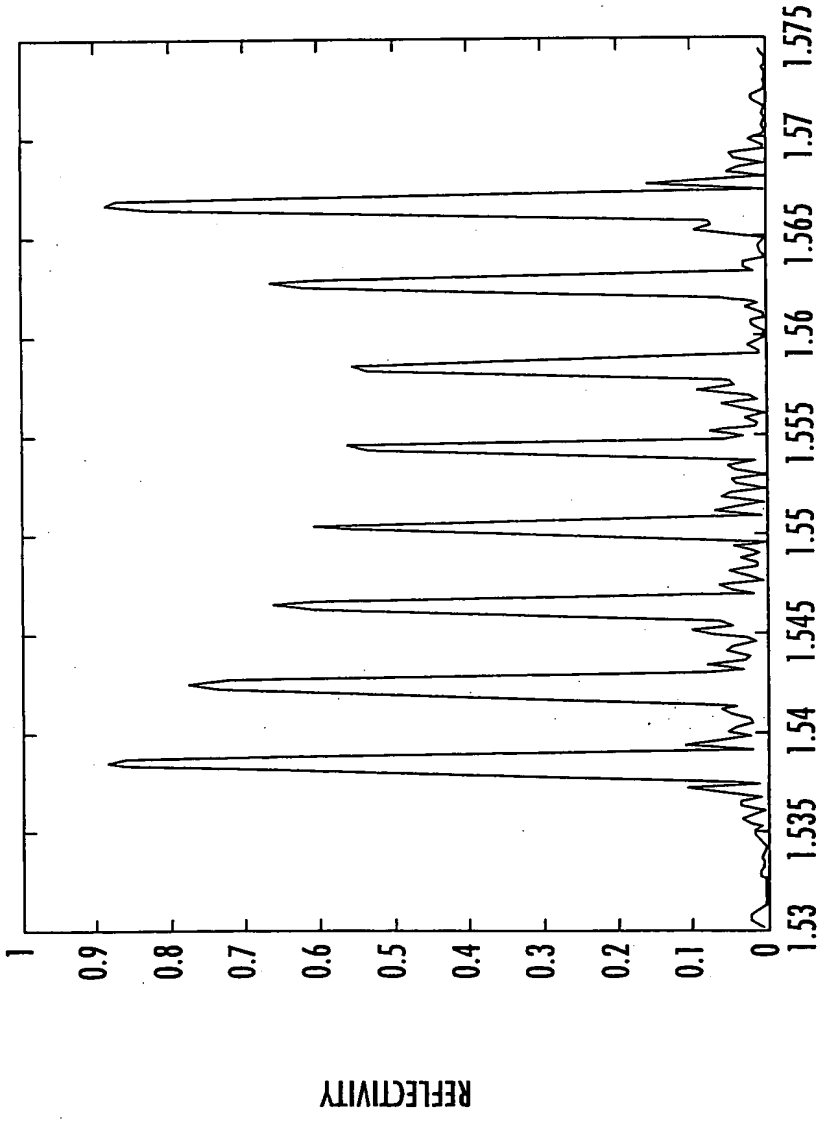
REFLECTIVITY
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1.53
1.535
1.54
1.545
1.55
1.555
1.56
1.565
1.57
1.575
WAVELENGTH (μm)

FIG. 9